AN ECONOMIC EVALUATION OF DIRECT ACCESS TO THE INTELSAT SYSTEM BY U.S. TELECOMMUNICATIONS CUSTOMERS

Prepared for

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I. INTRODUCTION AND SUMMARY

This report provides an economic analysis of "direct access" as it applies to U.S. telecommunications carriers, broadcasters, and other telecommunications customers dealing with COMSAT World Systems ("COMSAT") and the International Telecommunications Satellite Organization (INTELSAT). INTELSAT is an international treaty-based organization which owns, operates, and manages a global satellite network. Currently, 136 member nations are represented in INTELSAT by their Signatories, which are a mix of government-owned postal, telephone, and telegraph (PTT) administrations and private corporations. Until very recently, INTELSAT has provided international satellite services exclusively through its Signatories. COMSAT, designated by Congress as the United States Signatory to INTELSAT,[1] is the sole provider of U.S. international satellite services using the INTELSAT system.

Since the late 1980s, the international telecommunications marketplace has been undergoing significant transformation.[2] New facilities, such as fiber-optic undersea cables and specialized high-power satellites, are being deployed at a staggering pace to meet the explosive demand for high-quality worldwide communications capabilities. Following the U.S. lead, a number of countries throughout the world are now liberalizing their telecommunications industry to promote competition and infrastructure investment. Already, a growing number of state-owned monopoly PTTs have been restructured or privatized.

In the U.S., COMSAT has always been required by law to provide non-discriminatory access to the INTELSAT system. In other countries, however, the PTTs have historically controlled

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[1] Communications Satellite Act of 1962, 47 U.S.C. § 701-744 ("*Satellite Act*").

[2] See Appendix B for a discussion of these changes with respect to the market for telecommunications services to and from the U.S.

such access. To help create a more level playing field for emerging telecommunications providers, some of these countries have started to embrace the option of "direct access" to international satellite facilities so that the fully vertically- and horizontally-integrated PTTs can no longer hamper competition. In response to these changes, INTELSAT recently has modified its policies to accommodate non-Signatory access to its satellite system by countries which desire that option.[3]

However, the new liberalized access policies may not be sufficient to best serve the needs of INTELSAT users and investors. Today, INTELSAT faces effective competition from fiber-optic cables and separate satellite systems (domestic, regional, and international). This competition has forced INTELSAT to examine critically its very structure and governance arrangements to determine what it must do to be able to respond with more flexibility to the international telecommunications marketplace.

Both COMSAT and the U.S. Government are proponents of some form of fundamental restructuring of INTELSAT, referred to most commonly as "privatization." While various restructuring proposals are currently being debated, they generally entail the conversion of INTELSAT, in whole or in part, from an intergovernmental, cost-sharing cooperative into a for-profit corporation with publicly traded shares. Management, like that of any public corporation, would be accountable to a Board of Directors, its stockholders, and the regulatory and legal requirements in the markets in which it operates. The privatized part of INTELSAT also would market its satellite services directly to consumers—rather than exclusively through Signatories—just as its competitors do now, subject to the applicable national laws in each of the countries in which it provides service. Thus, as envisioned by COMSAT and the U.S. Government, INTELSAT would lose its current privileges and immunities as an international organization, and its cumbersome governance structure of Parties (*i.e.*, governments) and Signatories would be replaced by more flexible management, ownership, and financing arrangements.

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[3] Examples of countries that have implemented forms of direct access include the U.K., Australia, New Zealand, Argentina, Chile and Germany.

Over the years, a number of entities have requested that the Federal Communications Commission (FCC) investigate the competitive issues associated with COMSAT's exclusive access to the INTELSAT system in its role as the U.S. Signatory. The ensuing proceedings often focused on various proposals for "direct access." Regardless of how some direct access proposal differed from others, they all began with a common hypothesis: that replacing COMSAT to some degree, or entirely, would result in lower costs to users of the INTELSAT system and the American public. Upon examination and study, however, this hypothesis consistently proved unfounded.

While direct access to INTELSAT has been evaluated and rejected by the FCC,[4] the most recent developments in connection with INTELSAT access policies, and the movement to revise access in other countries, have renewed interest in "direct access" (other than through COMSAT) to the INTELSAT system for U.S. telecommunications carriers. However, the same access issues facing other countries have not arisen in the U.S. because COMSAT is required by statute to provide non-discriminatory access to all U.S. users of INTELSAT. Moreover, direct access to INTELSAT would be established under current restructuring proposals. Given these facts, a more focused question arises: what are the costs and benefits of providing direct access for U.S. customers *before* INTELSAT is restructured?

To make that assessment, COMSAT has requested an economic analysis of various possible forms of direct access to determine to what extent direct access would constitute sound economic policy. After reviewing COMSAT's function within INTELSAT and a number of direct access options, we conclude that the costs of allowing for direct access before INTELSAT restructuring is addressed may be significant and are most likely to outweigh any benefits by a substantial margin.

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[4] *Regulatory Policies Concerning Direct Access to INTELSAT Space Segment for the U.S. International Service Carriers*, 97 FCC 2d 296 (1984) ("*Direct Access*"), aff'd, *Western Union International, Inc. v. FCC*, 804 F. 2d 1280 (D.C. Cir. 1986). See Appendix B for a discussion of this decision.

For there to be significant benefits of direct access, either COMSAT's role as Signatory would have to be unnecessary, or its replacement significantly more efficient in accomplishing the same tasks. However, we do not find support for either proposition. While most INTELSAT space segment costs are outside the control of COMSAT (or direct access customers for that matter), COMSAT itself does incur costs and expends resources to serve its customers and to ensure that the space segment requirements of U.S. customers can be satisfied on the INTELSAT system. Because the provision of these space segment-related services is already exposed to effective competition, efficiency gains from direct access would be small or even non-existent. Moreover, and perhaps more importantly, even if there were minor benefits to direct access, we find that any attempt to adopt it at this point in time may add considerable costs, increase the administrative burden, decrease representation of U.S. policy interests (while increasing regulatory burden), incorrectly price space segment capacity, reduce U.S. regulatory control, and serve only to delay, or frustrate entirely, the initiative to "privatize" or "corporatize" INTELSAT. Privatizing INTELSAT has the potential to create a competitive telecommunications marketplace with true efficiency gains and to benefit American users more than any of the direct access proposals being discussed.

There are three prerequisites to the proper evaluation of the direct access issue: (1) a clear understanding of COMSAT's role within INTELSAT and how this role differs from that of Signatories representing other countries; (2) an understanding of how INTELSAT functions economically; and (3) a common definition of what exactly is meant by "direct access" in its various permutations. Accordingly, this analysis begins with an examination of these areas in Sections II and III, respectively. Section IV then discusses the benefits and costs of direct access and Section V summarizes our conclusions.

II. COMSAT'S ROLE AS INTELSAT SIGNATORY

In industries undergoing the transition to increased competition, "direct access" to valuable facilities is a frequently raised issue. However, as simple as the notion of "direct access" may appear to be, the concept generally is not well defined. This is particularly true as it applies to direct access by customers in the U.S. using the INTELSAT system.

As noted above, INTELSAT is a cost-sharing cooperative which manages and operates a global satellite network. As an international organization, INTELSAT is composed of Parties (the member governments) and Signatories (government-owned and private telecommunications operators) representing 136 nations.[5] Each Signatory to the INTELSAT Operating Agreement

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[5] INTELSAT is composed of three collective bodies, each of which has different oversight responsibilities. The principal governing body of INTELSAT is the Assembly of Parties, which consists of all sovereign member states. The other governing bodies of INTELSAT are the Board of Governors ("the Board") and the Meeting of Signatories.

The Assembly of Parties is concerned with those policy aspects of INTELSAT which primarily interest the Parties as sovereign states; each Party has an equal vote on such issues. Decisions on substantive matters require a two-thirds majority, while decisions on procedural matters need only a simple majority to pass. *INTELSAT Agreement*, Article I and VII.

The Board's main function is to regularly oversee management matters, including satellite and launch vehicle procurement decisions, financial policy, allocation and pricing of space segment capacity, specification of access conditions, and approval of earth stations. (INTELSAT's executive officers, headed by the Director General, are directly responsible to the Board.) The Board is generally composed of 20 to 22 Governors who represent individual Signatories with the largest investment shares and groups of Signatories with smaller investment shares. Up to five seats on the Board are available to groups of five or more countries in a particular ITU region, regardless of investment levels. The Board of Governors is expected to make decisions by consensus. However, if it fails to reach unanimous agreement, decisions must be based on a vote. For substantive decisions, a two-thirds majority based on investment shares is required; for procedural questions, a simple majority of Governors is sufficient. *INTELSAT Agreement*, Articles IX and X.

The Meeting of Signatories convenes once a year to consider various matters presented to the Signatories by the Assembly or the Board; it also undertakes a number of broad administrative functions such as (continued...)

accepts the various management and financial duties and liabilities required to keep the satellite network in operation. COMSAT is the U.S. Signatory and by law is the sole provider of INTELSAT space segment to U.S. users.[6] Today, INTELSAT's global satellite network is composed of roughly 23 satellites (although many of them are in less desirable inclined orbits) that offer international telecommunications services in competition with submarine fiber-optic cables and a number of other satellite systems in the Atlantic, Pacific, and Indian Ocean areas.[7]

However defined, "direct access" to INTELSAT for U.S. customers would represent a bypass of some or all of COMSAT's role as the U.S. Signatory to INTELSAT. As a consequence, any definition of direct access must be based on a review of COMSAT's functions as a Signatory. As the U.S. Signatory, COMSAT performs important customer service, sales, market research, and planning functions in order to help formulate and implement appropriate commercial strategies for INTELSAT. Furthermore, according to INTELSAT's *Operating Agreement*, COMSAT is obligated to invest capital in INTELSAT, make quarterly capital contributions, pay utilization charges, participate in INTELSAT administrative and operational meetings, disclose to INTELSAT (and other Signatories) inventions and technical information, and provide the interface for local wholesale and end-use telecommunications customers.

We have grouped COMSAT's main functions and obligation as the U.S. Signatory into distinct categories that will help facilitate the definition and understanding of the various forms of direct access discussed below. These categories of COMSAT's Signatory functions and obligations are:

- Customer service;
- Representation of U.S. customer and policy interests;

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[5](...continued)
determining representation on the Board of Governors and establishing rules for capacity allocation and utilization charges. *INTELSAT Agreement*, Article VIII.

[6] *Satellite Act*, 47 U.S.C. § 701(c).

[7] Since the late 1980s, significant international transmission capacity has become available to U.S. users on facilities other than INTELSAT's. See Appendix B.

- INTELSAT investment responsibility;
- Participation in the IUC mechanism;
- Operating liabilities; and
- Research & development.

Each of these categories is associated with significant costs, financial risk, and financial responsibility. Thus, if direct access were introduced in the U.S., COMSAT as the U.S. Signatory would have to be compensated for whatever tasks it would still be required to perform on behalf of direct access customers. Similarly, the costs associated with the functions not left with COMSAT would then have to be borne by INTELSAT or individually by direct access customers to INTELSAT.

A. Customer Service

COMSAT provides important sales, billing, collection, marketing, and coordinating functions to its customers. It is a matter of some significance that COMSAT actually performs these services for many more customers than the number of entities that INTELSAT deals directly with today. For example, COMSAT:

- Responds to customers' requests for specific service by coordinating with INTELSAT and the foreign ends of the telecommunication link and by ensuring that its customers get the type of space segment capacity best suited for their particular service requirements;
- Provides individual detailed bills of its services for each U.S. customer;[8]

[8] The costs of COMSAT's customer service function also include expenditures for customer credit reviews and collection services.

- Assists technically inexperienced service providers in the U.S. with tasks such as procurement of earth stations, interference and licensing support, and testing procedures;[9]
- Performs the market research, customer surveys, and pricing analysis necessary to develop its positions in INTELSAT planning and operating decision-making; and
- Manages its commitments to INTELSAT so as to minimize costs for its U.S. customers.

COMSAT provides these sales, marketing, billing, and coordinating functions to 25 to 30 U.S. carriers, over 200 broadcasters, and a large number of private-line business customers.

B. U.S. Representation

COMSAT represents the interests of its U.S. customers and the U.S. Government before INTELSAT. As the Signatory with the largest investment share in INTELSAT, COMSAT has traditionally played an important role in guiding INTELSAT. During its early years, COMSAT actually managed INTELSAT. Although COMSAT no longer performs that function, the initiatives taken by COMSAT as the U.S. representative in planning functions and governance are still central to advancing the interests of U.S. users of the INTELSAT satellite system

To ensure that INTELSAT serves U.S. customer and policy interests, COMSAT actively participates in all aspects of INTELSAT planning and operations. In particular, to perform these functions COMSAT must:

- Analyze and forecast customer telecommunications demand and space segment requirements for INTELSAT service to and from the U.S.;

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[9] COMSAT also provides on-site technical support to earth station vendors at their manufacturing facilities to assist them with design guidance so that their products meet the requirements of the INTELSAT system.

- Coordinate and secure INTELSAT capacity to accommodate the traffic requirements of all U.S. customers using the INTELSAT system;
- Participate directly in INTELSAT governing functions (Meeting of Signatories, Board of Governors) and various function-specific meetings (such as Global Traffic Meetings and Operational Representatives Meetings) to advance U.S. commercial and policy objectives;
- Provide advice and assistance to U.S. government officials representing the U.S. at the Assembly of Parties;
- Negotiate with other Signatories to ensure that U.S. interests are served;
- Brief the U.S. Executive Branch, Congress, the FCC, and the general public on INTELSAT matters;[10]
- Perform financial and technical analyses to assess INTELSAT budgets, forecasts, capacity planning, and the coordination of satellite deployment;
- Participate in spacecraft design, procurement, and the selection of launch vehicles and satellite support services;[11] and
- Encourage the development of technical specifications[12] and the design of individual service offerings that are in the interests of U.S. customers.

In short, COMSAT's role as U.S. representative is significant. Not only does COMSAT provide an important voice for U.S. customers before INTELSAT, but it also must fulfill its responsibilities to INTELSAT and interact with the U.S. Government to ensure that INTELSAT's activities are consistent with both government policy and consumer interests.

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[10] COMSAT, as part of the "instructional process," meets frequently to discuss issues with the FCC, the National Telecommunications and Information Administration (NTIA), and the State Department.

[11] In this role, COMSAT has been a major (and successful) advocate for U.S. manufacturers in INTELSAT satellite and launcher procurement.

[12] COMSAT also advocates satellite-user-friendly technical standards before the International Telecommunication Union (ITU) and other standards-setting bodies.

C. INTELSAT INVESTMENT RESPONSIBILITIES

As a Signatory, COMSAT assumes INTELSAT investment responsibilities in two ways: (1) through an obligation to respond to INTELSAT capital calls; and (2) through the responsibility to adjust its investment share according to usage.

INTELSAT's capital requirements for all direct and indirect costs of the design, development, construction, and establishment of the INTELSAT space segment and other INTELSAT property have traditionally been funded through "capital calls" made to the Signatories.[13] These capital contributions are in the order of hundreds of millions of dollars to cover the costs of launch vehicles and satellites, and are assessed in proportion to each Signatory's investment share.[14] COMSAT has to increase its investment contributions whenever INTELSAT decides to increase its capital base—whether or not COMSAT needs (or even has access to) the facilities that this capital may be financing.[15]

More recently, INTELSAT has also begun to obtain funds through the placement of debt instruments in the international financial markets. However, COMSAT has to assume direct liability for these debt issues according to their ownership shares. COMSAT is fully responsible for the debt that INTELSAT issues and any claim that lenders have against INTELSAT will *directly* affect COMSAT and its stakeholders. In fact, the full balance of the debt is carried on COMSAT's books on a pro-rata basis. Furthermore, because of its obligation to respond whenever INTELSAT calls for additional capital, COMSAT's financial exposure is not limited to its already-invested capital.

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[13] *Operating Agreement*, Article 4.

[14] COMSAT's current investment share in INTELSAT is 19.1 percent.

[15] For example, if INTELSAT decides to procure a satellite to serve the Indian Ocean Region, COMSAT is obligated to contribute 19.1 percent of the in-orbit cost of that satellite even though earth stations in the U.S. cannot access it.

INTELSAT investment shares cannot be traded freely between Signatories but are tied to the usage share of each Signatory.[16] Investment shares also remain fixed between annual adjustments made to reflect changes in utilization shares determined as of March of every year. If a Signatory changes its usage on INTELSAT relative to others, it will become obligated to change its INTELSAT investment share.

COMSAT needs to maintain the liquidity and financial resources to be able to respond to INTELSAT's quarterly capital calls and annual adjustments of investment shares. This is associated with costs that COMSAT needs to recover in addition to its return on, and the repayment of, invested capital.

D. Participation in the IUC Mechanism

COMSAT is obligated to participate in the framework of financial transactions between INTELSAT and its Signatories. This framework of utilization charges and revenue distributions (discussed below) allows INTELSAT to operate as a cost-sharing cooperative. INTELSAT Utilization Charges (IUCs) were established as the units of measurement of INTELSAT space segment usage to determine the Signatories' ownership shares. When a Signatory (or non-Signatory user) orders space segment, it becomes obligated to pay IUCs based on the type and amount of INTELSAT capacity ordered. The IUCs are meant to cover INTELSAT O&M costs,[17] the repayment of capital contributions (*i.e.*, the amortization of investments or the depreciation of assets), and some compensation for the use of the Signatories' capital contributions in the form of a before-tax return on investment.[18]

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[16] A Signatory may notify INTELSAT that it is willing to accept an increase in its investment share in order to accommodate requests for lesser investment shares by other Signatories. Because of such arrangements, COMSAT's current investment share of 19.1 percent exceeds its current utilization share of 16.7 percent.

[17] This includes operating costs, maintenance costs, administrative costs, and operating fund requirements.

[18] See Appendix A.

It is important to note that IUCs are not the equivalent of market-based "prices" of satellite service, nor do they reflect the full cost of providing INTELSAT space segment service. As the FCC has previously observed, IUCs do "not include any amount to compensate COMSAT for the internal costs which COMSAT incurs making satellite circuits available to U.S. customers and engaging in other activities connected with its role as U.S. Signatory to INTELSAT."[19] Specifically, IUCs are not intended to cover taxes on COMSAT's (and other Signatories') income, nor do they cover any of the internal costs that COMSAT and other Signatories incur in exercising their Signatory functions.[20] Also, as explained below, "the amount of compensation COMSAT receives as a return on its INTELSAT investment through the IUC mechanism does not provide COMSAT a full return on its total investment in INTELSAT."[21]

Each quarter, total INTELSAT revenues from IUCs are redistributed to Signatories in Revenue Distributions according to investment shares. At the same time, INTELSAT issues its capital calls[22] and requires Signatories to advance next quarter's O&M costs. Because Signatories advance INTELSAT O&M costs independently of whether or not actual IUC revenues are sufficient to cover these costs, Signatories also assume the implicit financial risk that IUC revenues are insufficient to cover INTELSAT O&M expenses.[23]

With this IUC mechanism of utilization charges, revenue distributions, capital calls, and advances of O&M costs, Signatories' quarterly *net* payments to INTELSAT become equivalent to:

- Their share of total INTELSAT O&M costs;

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[19] *Direct Access* at 310-311. See Appendix A for a discussion of the IUC mechanism and COMSAT revenue requirements.

[20] For COMSAT, this includes the costs associated with customer service, U.S. representation, operating and financial liabilities, research & development, as well as COMSAT's other administrative and general expenses.

[21] *Direct Access* at 312. See Appendices A and B.

[22] Including annual adjustments to ownership shares.

[23] *INTELSAT Agreement*, Article 8.

- A contribution to the capital costs associated with the fraction of INTELSAT assets used but not owned;[24] and
- INTELSAT capital calls.

Because these net payments include a contribution to cover capital costs of INTELSAT assets used but not owned, the "IUC mechanism" creates an INTELSAT-internal transfer price for the small (and sometimes temporary) imbalances between Signatories' utilization and investment shares.[25] Thus, rather than representing the cost (or price) of space segment service, the IUCs merely are part of an internal accounting mechanism designed principally to facilitate INTELSAT's functioning as a cost-sharing international "cooperative" of individual countries' telecommunications service providers. Understanding the economics of this mechanism has an important bearing on the forms of direct access and their impacts on COMSAT.

E. Operating Liabilities

In addition to financial liabilities associated with Signatories' investment responsibility, Signatories also are jointly liable for any damage to the INTELSAT system, the loss of spacecraft, and any claims against INTELSAT or against Signatories acting in accordance with their obligations under the INTELSAT agreements. In addition, COMSAT is individually liable for any loss or damage caused by its operations as well as for compliance of earth stations and their interference-free operation.[26]

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[24] This is a payment for the extent to which a Signatory's investment share falls short of its utilization share. Signatories, like COMSAT, with investment shares in excess of utilization shares, will be the net recipients of these transfer payments.

[25] As the FCC has recognized, "the IUC . . ., which includes a 14 percent pre-tax return, assumes economic significance only to the extent that others utilize a portion of the system in which COMSAT has invested" (*Direct Access*, at 36). For a more detailed discussion, see Appendix A.

[26] INTELSAT, *Operating Agreement*, Article 18.

F. Research and Development

Although COMSAT is no longer the exclusive manager and sole provider of research and development (R&D) to INTELSAT, COMSAT World Systems continues to fund a number of R&D activities on behalf of its customers to improve the global INTELSAT system. Examples of COMSAT-funded R&D include design changes to provide higher transmit power on the INTELSAT VII and VIII series satellites to allow for smaller antennae, and the development and implementation of technologies to provide additional features and to improve transmission quality (*e.g.*, "outer codec" technology, uplink power control for rain fade protection, and a second generation TDMA technology). COMSAT's expenditures for these R&D projects are part of its jurisdictional (regulated) revenue requirements. To that extent, technology developed by COMSAT currently is licensed on a no-fee basis to COMSAT's customers, as well as to INTELSAT and other Signatories.

III. OPTIONS FOR "DIRECT ACCESS"

As noted earlier, calls for "direct access" to INTELSAT space segment are not a new phenomenon. The Commission first considered direct access proposals eleven years ago,[27] but found that direct access would not serve the public interest because "whatever benefits would be derived" would not be sufficient "to outweigh the adverse consequences . . . of direct access."[28]

To determine whether that policy balance would be struck differently today, it is useful to understand how relevant regulatory policies and market conditions have changed[29] and the ways in which direct access might take form. Much of the confusion about direct access, in years past as well as today, results from the different meanings assigned to the term by different entities. Thus, any discussion of "direct access" must begin with a review of the various forms of direct access that potentially are available.

Based on the above categorization of COMSAT's functions as U.S. Signatory, a number of direct access options can be defined depending on how much of COMSAT's current Signatory role direct access customers or INTELSAT would have to assume. We have divided "direct access" into four basic policy permutations: multiple Signatories, non-Signatory shareholders, investment participation, and contractual access. These options are summarized in Table 1 and discussed in detail below. By definition, any direct access option would require INTELSAT to assume the customer service functions (sales, billing, collection, marketing, and coordination) currently performed by COMSAT.

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[27] *Direct Access*. See Appendix B for a detailed summary of this decisions.

[28] *Direct Access* at 298.

[29] See Appendix B also for a summary of changes to regulatory policies and market conditions since *Direct Access*.

TABLE 1
Roles of COMSAT, INTELSAT, and Direct Access Customers Under Different Direct Access Options

Function or Obligation	Direct Access Option				Current Arrangement
	Multiple Signatories	Non-Signatory Shareholders	Investment Participation	Contractual Access	
Customer Service	INTELSAT	INTELSAT	INTELSAT	INTELSAT	COMSAT
U.S. Representation	?	COMSAT	COMSAT	COMSAT	COMSAT
Investment Responsibility: *Response to INTELSAT Capital Calls and adjustment of investment shares*	Direct Access Customer	Direct Access Customer [1]	COMSAT	COMSAT	COMSAT
Initial Investment According to Usage	Direct Access Customer	Direct Access Customer [1]	Direct Access Customer [1, 2]	COMSAT	COMSAT
Participate in IUC Mechanism: *Receipt of Revenue Distributions (net of O&M)*	Direct Access Customer	Direct Access Customer	Direct Access Customer	COMSAT	COMSAT
Payment of INTELSAT Utilization Charges	Direct Access Customer	Direct Access Customer [1]	Direct Access Customer [1]	Direct Access Customer [1]	COMSAT
Operating Liabilities	Direct Access Customer	Direct Access Customer [1]	Direct Access Customer [1]	Direct Access Customer [1]	COMSAT
Research & Development	Direct Access Customer [3]	Direct Access Customer [3]	Direct Access Customer [3]	Direct Access Customer [3]	COMSAT

Notes:

[1] COMSAT would retain ultimate (*i.e.*, residual) liabilities for any financial obligations of U.S. direct access customers, as well as operating liabilities associated with interference with, damage to, or claims against the INTELSAT system as a result of their operations (*Signatory Access, Liability and Investment Issues*, INTELSAT, December 27, 1993). Direct access customers would need to provide guarantees (*e.g.*, by banks, other financial institutions, or insurance companies) to cover all operating and financial liabilities or pay a fee that COMSAT would find compensatory for bearing ultimate liabilities implicit in its Signatory functions.

[2] Under the "investment participation" option, direct access customers would make a one-time capital investment to acquire rights to use a fixed amount (rather than a fixed percentage share) of INTELSAT capacity similar to an "indefeasible right of use" (IRU).

[3] Direct access customers may need to pay licensing fees for technologies based on R&D performed on behalf of COMSAT World Systems' customers.

A. MULTIPLE SIGNATORIES

The most extreme form of direct access would be for interested U.S. users of the INTELSAT system to become Signatories to the INTELSAT Operating Agreement. This would entail a full duplication of all of COMSAT's functions as the U.S. Signatory by each direct access customer. By definition, each direct access customer would enjoy all the privileges of a Signatory, but also would share the responsibilities and liabilities that the Signatory role entails. As under all other forms of direct access, under a multiple signatories option, INTELSAT would have to deal directly with a greater number of entities.[30]

Multiple Signatories would require the amendment of the INTELSAT Agreement (which is currently being considered by the Assembly of Parties) as well as amendment to the 1962 Satellite Act which currently designates COMSAT as the sole U.S. Signatory. Even assuming multiple Signatories were permitted under U.S. law, however, it is unclear whether all of the designated Signatories would jointly represent U.S. policy interests at the Board of Governors and the Meeting of Signatories, or whether this representation would continue to be the sole responsibility of COMSAT. It is also unclear whether U.S. Signatories would be able to combine their shares with other U.S. and/or foreign Signatories to qualify for Board of Governors representation. This study ignores these matters for the purpose of its economic analysis. However, multiple Signatories would reinforce the current structure of INTELSAT and make efficient operations and decision making, as well as the restructuring of INTELSAT, more difficult.

Because customers would no longer rely on COMSAT, direct access in the form of multiple Signatories might not require the creation of a compensation mechanism between COMSAT and direct access customers other than INTELSAT's currently existing mechanism for financial adjustments between Signatories. However, as any other investment option, this form of direct access raises the critical question of how ownership shares in INTELSAT assets should be priced

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[30] This would not only increase INTELSAT O&M costs but also the total costs of INTELSAT space segment to end users. See Section IV-C for a discussion of this issue.

in order to compensate COMSAT adequately and limit rate impacts on its remaining customers. For example, should initial investment share be possible at INTELSAT's net book value, COMSAT's net book value, or the fair market value of space segment capacity? If INTELSAT's net book value is below COMSAT's book value and fair market value, direct access would have significant financial implications for COMSAT, its remaining customers, and other satellite systems.[31]

Also, COMSAT might have to modify the way it performs R&D activities on behalf of its customers under any form of direct access. Rather than recovering these costs as part of revenue requirements to the benefit of all U.S. customers, COMSAT may have to charge direct access customers for the use of its technological advances.[32]

B. Non-Signatory Shareholders

Short of becoming Signatories, direct access customers possibly could become non-Signatory shareholders in INTELSAT.[33] Each such entity would make an initial capital investment that corresponded to its utilization share (or the minimum investment of 0.05 percent), contribute to INTELSAT's capital requirements through quarterly capital calls, and take part in the annual adjustments of investment shares.[34] As investing entities, non-Signatory shareholders essentially would share part of COMSAT's investment in INTELSAT, shift the customer service

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[31] See Section IV-C for a discussion of the potential for incorrectly pricing INTELSAT investments and services. See Appendix B for a summary of market structure and competing telecommunications facilities.

[32] Additional administrative tasks such as determining appropriate licensing fees and formulating lease-back licensing arrangements of derivative improvements that customers make to COMSAT-developed technology would also have to be taken into consideration.

[33] INTELSAT currently provides for non-Signatory shareholders ("investing entities") as one form of access that a Party may authorize for an entity within the territory under its jurisdiction (See Appendix B). *Signatory Access, Liability and Investment Issues*, INTELSAT, December 27, 1993. An entity authorized to have direct access to INTELSAT is termed an "Appointed Customer."

[34] Again, the question arises of how such investment should be priced. If INTELSAT book value of COMSAT's investment is below COMSAT's book value or the market value of its INTELSAT investment, direct access options associated with investment at INTELSAT book values might have considerable implications for COMSAT, its customers, and competitors.

function from COMSAT to INTELSAT, participate in the IUC mechanism, and share primary investment responsibilities.[35] They would also be able to order all INTELSAT services directly and submit earth station applications.

Under this direct access option, COMSAT would continue to be the U.S. representative and guarantor for remaining INTELSAT liabilities. Although non-Signatory shareholders would be primarily liable for payments to INTELSAT, depending on how U.S. arrangements were structured, COMSAT could wind up retaining *ultimate liability* in one or more of four general areas: (1) liability for unpaid utilization charges;[36] (2) liability for damage to INTELSAT caused by the misoperation of an earth station;[37] (3) liability for payment of investment share, financial adjustments, and capital contributions; and (4) liability for any other payments that might become due (*e.g.*, under Article 18 of the Operating Agreement).

Under the non-Signatory shareholder option, COMSAT would have to be compensated for:

- Representing U.S. customers and policy interests before INTELSAT;
- All administrative costs associated with accommodating this form of direct access;[38] and

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[35] That is, direct access customers would use the INTELSAT system for the payment of mandatory capital calls and utilization charges, repayments of capital, compensation for use of capital, and financial adjustments related to investment share changes.

[36] Under INTELSAT's "investing entities" option, the Signatory can notify INTELSAT that a direct access customer within its service territory is to be held directly liable to INTELSAT for settlement of its utilization charges. Such a transfer of liability will not be in effect until INTELSAT is satisfied with the creditworthiness of the direct access customer.

[37] Signatories may devolve liability for misoperation of the earth stations in question only if: (1) the government that is Party to the INTELSAT Agreement assumes responsibility for proper operation; and (2) the direct access customer accepts the financial liability for misoperation. INTELSAT, Board of Governors, June 1993, BG-97-3, ¶ 91.

[38] COMSAT may continue to provide some administrative functions such as providing INTELSAT with updates on the investment shares of direct access customers and their related shares comprising total national investment share.

- The risks imposed by operating and financial liabilities that remain with COMSAT.

Direct access customers could choose either to provide guarantees (by banks, financial institutions, or insurance companies) sufficient to cover these liabilities, or to pay a fee that COMSAT would find compensatory for assuming these liabilities. COMSAT might also need to charge licensing fees for technologies based on R&D performed on behalf of its customers.

C. Investment Participation

Direct access in the form of an "investment participation" would allow customers to make a capital investment through COMSAT in return for acquiring rights to use a certain fixed amount (as opposed to owning a fixed percentage share) of INTELSAT capacity.[39] Similar to the concept of indefeasible right of use (IRU) for investments in submarine cables, investment participation would provide clearly-defined capacity rights on facilities without obtaining rights in management or control.[40]

Under the investment participation option, direct access customers would no longer use COMSAT for the provision of customer service and would assume only very limited investment responsibilities. These direct access customers would make only an appropriate (one-time) payment to COMSAT for the amount of INTELSAT space segment capacity that they intended to use. The main difference between the non-Signatory shareholder option and investment participation option is that, under the latter option, the obligation to respond to INTELSAT capital calls and financial adjustments of investment shares would remain with COMSAT. Thus, these direct access customers would not be responsible to contribute to ongoing INTELSAT

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[39] Just as under the multiple Signatories and non-Signatory shareholders options, investment participation raises the difficult question of how investment shares should be priced.

[40] This option was essentially described as the "IRU option" in the FCC's 1984 direct access decision (*Direct Access* at 300-301).

capital requirements. Moreover, unless direct access customers decided to increase their utilized capacity, no further capital contributions to the INTELSAT system would be required.

Similar to IRU arrangements in submarine cables, these direct access customers would also be responsible for O&M costs associated with their assigned capacity. Under the investment participation option, these "O&M costs" would be INTELSAT O&M costs paid through the IUC mechanism, as well as COMSAT's costs associated with:

- Representing U.S. customers and policy interests before INTELSAT;
- Administrative efforts associated with investment participation;
- The risks imposed by operating and financial liabilities that remain with COMSAT; and
- Maintaining the financial resources needed to respond to INTELSAT's capital calls and financial adjustments of investment shares.

Again, COMSAT may need to charge fees for the licensing of technology that it developed on behalf of its customers.[41]

D. Contractual Access

Contractual access would allow customers to deal directly with INTELSAT for most operational issues but without investment responsibility and, in contrast to other direct access options, without any up-front payments for capacity.[42] Under this option, direct access customers would be able to submit applications directly to INTELSAT for allotment of capacity, accept liability

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[41] Conceivably, some of the above "O&M costs" could be capitalized and added to direct access customers' initial capital investment. This could also include a one-time fee for the licensing of technology that COMSAT developed on behalf of its customers.

[42] Contractual access is also one of the direct access options for which INTELSAT currently provides *Signatory Access, Liability and Investment Issues*, INTELSAT, December 27, 1993. This form of direct access is similar to the "capital lease" option discussed in the FCC's 1984 direct access decision (*Direct Access* at 300).

for INTELSAT utilization charges (IUCs) due,[43] submit earth station applications, ensure earth stations meet INTELSAT specifications and standards, and accept liability for any breaches of these standards (including liability for any damage to the space segment or interference caused by faulty earth station operations).

Under the contractual access option, direct access customers would shift the customer service function from COMSAT to INTELSAT but would not assume any financial responsibility other than the payment of utilization charges. Consequently, contractual access customers would still have to compensate COMSAT for:

- Its role as U.S. representative;
- Any administrative efforts associated with contractual access;
- The risk imposed by operating and financial liabilities that remain with COMSAT;
- Maintaining the financial resources needed to support INTELSAT's capital calls and financial adjustments of investment shares; and
- The extent to which the IUC mechanism does not provide a full return on capital committed by COMSAT.[44]

As with all other direct access options, COMSAT might need to charge fees for the licensing of technology that it has developed on behalf of its customers.

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[43] Unless full liability for direct access customers' IUC charges remained with the Signatory, customers with contractual access would be required by INTELSAT to deposit a collateral prior to any service commencement.

[44] The FCC previously noted that "the amount of compensation COMSAT receives as a return on its INTELSAT investment through the IUC mechanism does not provide COMSAT a full return on its total investment in INTELSAT" (*Direct Access* at 312). See also Appendix A for a description of the IUC mechanism and COMSAT revenue requirements for an explanation of this situation.

IV. ANALYSIS OF DIRECT ACCESS

A. CRITERIA FOR EFFICIENT AND EQUITABLE DIRECT ACCESS OPTIONS

In evaluating the various options for direct access, one should be explicit about the *efficiency* and *equity* criteria employed. The overall goal of telecommunications policy must be to provide for the best level of service on the most efficient terms possible. The promotion of consumer welfare, both now and in the future, is the overarching objective of sound economic policy. In the short run, that entails cost minimization, technical considerations, and the flexibility of services provided. But a short-run analysis by itself is insufficient; the longer-run aspects of efficiency analysis must not be ignored. As other economists put it: "Making the best use of resources at any moment in time is important. But in the long run, it is dynamic performance that counts."[45] Sound economic policy will enhance incentives for cost savings in the future as well as in the present. Incentives for innovation by owners of satellite systems, carriers and end users should be maintained. Minimizing administrative and regulatory costs is another important consideration. Finally, it is critical to focus on the evolution of satellite-based communications within the context of the entire telecommunications industry. Efficient and equitable economic policies must be able to withstand the transition to new institutions over time, and a meaningful economic analysis must not take today's institutional arrangements for granted.[46]

Equity or fairness is, likewise, a multi-faceted and dynamic concept. Fairness to the current users of COMSAT must take into account the implicit commitments made to these users, many

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[45] F. M. Scherer and David Ross, *Industrial Market Structure and Economic Performance*, 3rd Edition, Houghton Mifflin Company, Boston, 1990, p. 613.

[46] For a general discussion of these concepts, see Jean Tirole, *The Theory of Industrial Organization*, MIT Press, Cambridge, Mass, 1988.

of whom may have undertaken significant, irreversible investments. Fairness to COMSAT must take into account the terms and conditions under which COMSAT has operated as the sole U.S. Signatory to INTELSAT, and the investment and capacity commitments COMSAT has made to INTELSAT on behalf of its customers. It must also recognize the regulatory environment in which COMSAT has operated during that period of time.

In order to evaluate how the implementation of direct access would affect the U.S. telecommunications industry, clear policy goals and values must be established to provide a framework against which the various proposals for change *in the interest of consumer welfare* may be measured. These goals include:

- Minimization of overall costs, including administrative and regulatory costs;
- Maximization of service opportunities and service flexibility;
- Advancement of technology;
- Advancement of U.S. national interests; and
- Non-discriminatory (*i.e.*, competitively neutral) access to facilities.

The dynamic character of the telecommunications industry and the desired transformation of INTELSAT into a more commercial entity of some form, in the years ahead, must also be kept in mind. Moreover, it is important to weigh the costs and benefits of direct access in both the short and long run in light of the changing institutional structure of this industry.

The next two parts of this report evaluate the benefits and costs of direct access under these criteria. Most of the discussion of costs and benefits generally applies to all forms of direct access introduced in the previous section. Still, these next sections will make references to particular direct access options defined above to the extent that the discussed costs and benefits may vary among them.

On the benefits side, we begin by assessing how direct access might affect the incentives for efficiency within COMSAT, the INTELSAT charges for space segment, the differential impact on COMSAT's current customers, and the range of choice that these customers are likely to have. On the cost side, we will look at factors such as the implications on the representation of U.S. policy interests before INTELSAT, economies of scale, regulatory control, and efficient pricing of space segment services. We conclude that the potential gains from direct access are too small and too uncertain to overcome the significant problems and substantial costs that would be incurred if direct access were implemented at this time.

B. Alleged Benefits of Direct Access

It is frequently asserted that direct access would produce the following benefits:

- Creation of efficiency incentives for COMSAT;
- Avoidance of "middleman" costs;
- Reduction in the potential for cross-subsidization within COMSAT;
- Creation of a more "level" playing field;
- Increases in customer choice; and
- Reduced regulation.

Considering the structure of INTELSAT and COMSAT's position in the market for telecommunications services to and from the U.S., we find that the overall benefit of these effects is likely to be small, or possibly even non-existent. Any benefits of direct access under the current INTELSAT structure are likely to be outweighed by discernible negative effects as discussed in the following section. In order to give a full account of these effects, including those that could be beneficial in principle, the mechanisms through which they could work under the various direct access scenarios are analyzed below.

1. Efficiency Incentives for COMSAT

In any discussion of economic efficiency there are several time frames under which the analysis could be conducted, and several alternative hypotheses that could be maintained. The most basic among these is the concept of cost efficiency in the short run. Regardless of the distributional model that one has in mind, and regardless of the dynamics through which changes in the industry may be realized, lower costs for the same output or service would imply the existence of efficiency gains that should be squarely addressed.

In the case of direct access to INTELSAT space segment for U.S. carriers and broadcasters, it is asserted that real resources could be saved via some form of increased competition that direct access would generate. Essentially, this argument rests on the premise that there must be some "fat" in COMSAT—fat that could be eliminated if only COMSAT had to compete for customers who it allegedly can monopolize due to their lack of direct access to the INTELSAT system.

At the outset, it is important to recognize that (1) most of the costs of space segment services are beyond COMSAT's control; and (2) COMSAT already is exposed to effective competition. First, despite the role that COMSAT plays as the U.S. Signatory, COMSAT does not have within its control the large majority of the total charges paid by those who access the INTELSAT system through COMSAT. COMSAT only controls its internal costs such as expenditures associated with customer service, its function as the U.S. signatory, management, and research and development. To understand why this is the case, it is necessary to examine the composition of COMSAT's revenue requirements.[47] COMSAT's rates are designed to cover its revenue requirement, which includes the following cost categories:

- COMSAT internal costs (G&A,[48] R&D, and corporate headquarters allocations);

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[47] See the more detailed discussion of COMSAT's revenue requirement in Appendix A.

[48] General and administrative costs (INTELSAT Affairs, Engineering and Operations, Sales and Marketing, Finance, and Legal).

- Financing costs associated with COMSAT's share of INTELSAT investment (repayment of and return on investment);
- COMSAT tax liabilities; and
- COMSAT's share of INTELSAT O&M costs.[49]

Of these cost categories, only the first, internal costs, is directly within COMSAT's control. The second category, financing costs, is associated with the repayment of and the return on capital. The repayment of capital is provided through depreciation of INTELSAT assets. Depreciation of INTELSAT assets is beyond COMSAT's control because COMSAT directly controls neither the amount of INTELSAT investments nor the accounting principles under which its share of these investments are depreciated. Similarly, the return on capital is regulated by the FCC as the cost of capital associated with COMSAT's share of INTELSAT investment and, thus, is also beyond COMSAT's influence. In efficient financial markets, the cost of capital depends on the risk of the investment project rather than on the *average* cost of capital of the investing party. As a result, as long as direct access customers invest in INTELSAT on the same terms as COMSAT, their cost of capital *associated with that investment* would be identical to that of COMSAT.[50]

Direct access customers would face a lower cost of capital only if some of the INTELSAT investment risk remained with COMSAT. However, if this were the case, COMSAT would still have to be compensated for assuming the remaining risks. Since direct access would not reduce

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[49] COMSAT revenue requirement also includes "INTELSAT Net" as an adjustment to compensate for discrepancies in INTELSAT utilization and ownership shares. (See Appendix A).

[50] For a general discussion of these principles, see Brealey and Myers, *Principles of Corporate Finance*, 4th Edition, 1991.

The cost of capital depends on the risk of the investment project. Thus, the cost of capital is independent from whether a given project is pursued, for example, by a low-risk firm (with a correspondingly low average cost of capital) or a high-risk firm (with a correspondingly high average cost of capital). Only if direct access customers faced very different *transaction costs* in capital markets could their financing costs associated with an investment in INTELSAT differ from that of COMSAT. For example, small firms that are not traded on major stock exchanges may face higher transaction costs.

total investment risk and the FCC sets COMSAT's allowed return only equal to the cost of capital associated with this investment risk, it is difficult to see how net financing savings could be achieved.

In 1984, the FCC recognized that direct access would only provide efficiency incentives with respect to COMSAT-controlled costs. The Commission stated that "[i]f direct access will produce savings to carriers and users, it will be from costs relating to COMSAT's (rather than INTELSAT's) activities and operations."[51] However, because COMSAT-specific costs are only a fraction of space segment costs, the FCC has also concluded that "very little [would] be gained from [direct access] in terms of cost savings or increased efficiency."[52] Moreover, while direct access under the multiple signatories option potentially could provide additional competition for COMSAT-specific costs, other forms of direct access, where COMSAT continues to perform some of its functions on behalf of direct access customers, could provide such competitive alternatives only to a fraction of COMSAT-specific costs.

Second, effective competition in the markets where COMSAT operates already provides powerful efficiency incentives. Since the FCC's *Direct Access* decision in 1984, the industry has changed dramatically.[53] Regulatory changes and new technology have led to a rapid increase of both intermodal and intramodal competition. Significant intermodal and intramodal competition has emerged in the form of fiber-optic cables and separate satellite systems, rapidly decreasing COMSAT's market share, and exerting effective competitive pressure on COMSAT in its function of providing INTELSAT space segment capacity to and from the U.S. If it ever were the case that COMSAT had a less than complete incentive to be economically efficient, that is certainly not true today. Competition has driven COMSAT to be efficient and responsive to customer needs. It is very unlikely that COMSAT can pass higher than necessary costs along to its customers in the form of higher rates. The alternatives available to COMSAT's customers

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[51] *Direct Access* at 315.

[52] *Direct Access* at 318.

[53] See Appendix B.

in the form of multiple suppliers of transoceanic space segment and fiber-optic transmission are too attractive for such a strategy to be viable. As a result, any potential efficiency gain from direct access would be very small at best. The FCC's conclusion that "direct access, in and of itself, will not produce efficiencies and cost savings"[54] is even more compelling today than in 1984.

Further support for the efficiency of COMSAT's operation is provided by a closer look at COMSAT's customers. COMSAT's largest customers are, through their trans-oceanic fiber-optic cable systems, also its main competitors. They have more than adequate information about COMSAT and the expertise to evaluate this information. This situation would give COMSAT's customers the power to enforce significant economies in COMSAT if they believed that COMSAT was inefficient in its operations. In fact, because COMSAT's current customers also own and operate competing cable systems, direct access possibly could even decrease the level of effective competition by increasing U.S. carriers' concentration in the control of fiber-optic cable and satellite facilities.

In a recent public statement, Brian Knoblock, chairman of the North American National Broadcasting Association (NANBA), clearly stated that the most serious problem for INTELSAT users is *not* access that COMSAT provides to and from the U.S., but the lack of open and fair access to markets controlled by *foreign* monopoly PTTs. He explained that while COMSAT may charge U.S. users $10.50 for a service with INTELSAT utilization charges of $8 per minute of space segment, INTELSAT service providers in some nations charge $112 for the same service.[55] This is further evidence that for COMSAT the incentive for internal efficiencies already exists in the form of competitive pressure from alternative providers of international telecommunications capacity. In short, COMSAT has powerful economic incentives to be efficient in the delivery of its services.

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[54] *Direct Access* at 318-319.

[55] "INTELSAT Divestiture Debated," *Communications Daily*, March 15, 1995, pp. 3-4.

2. Avoid Costs of the "Middleman"

The argument that direct access could provide benefits to users by avoiding the cost of the middleman implies that COMSAT either (1) does not provide any added value in "reselling" INTELSAT space segment services; or (2) performs this function inefficiently. The latter point has already been discussed above.

Section II has explored in great detail COMSAT's services to U.S. users of INTELSAT capacity. Its role within INTELSAT goes far beyond that of a "middleman" that simply "resells" at an additional mark-up INTELSAT space segment to end users. In making INTELSAT capacity available to carriers and end users, COMSAT performs a number of important functions such as providing customer service, assuming INTELSAT financing responsibilities, and participating in INTELSAT administrative and planning functions to represent U.S. customers and policy interests. While COMSAT as the U.S. Signatory is able to provide scale economies in performing these functions, they are not without their own expenses. If a direct access policy should allow certain customers to "buy direct," it must also compensate COMSAT for the added value that it would continue to provide under the various forms of direct access. Otherwise, while all U.S. users of INTELSAT space segment would still benefit from COMSAT's services, these services would have to be financed solely by the remaining customers. That would be unsound economic policy and contrary to the intent of the Satellite Act of 1962, which makes a central point of the role that COMSAT is to play in ensuring that all U.S. end users are treated on a non-discriminatory basis.

Arguments have been made that "avoiding the middleman" should mean access at INTELSAT utilization charges. However, Section II and Appendix A show that the IUC was never meant to be a full and correct measure of the price of space segment service. To allow direct access and to charge only the IUC—even if increased by a mark-up for COMSAT's Signatory-related and other costs under the various forms of direct access—would be unlikely to approximate the true cost that COMSAT (or INTELSAT) faces for the provision of particular services. As discussed in more detail below, direct access would impose additional operating costs on

INTELSAT and the total cost of space segment to end users. Direct access would also increase the necessary administrative effort because a regulatory framework would have to be created to ensure that COMSAT would be compensated adequately for whatever tasks it would continue to perform on behalf of direct access customers.

In short, COMSAT is more than a middleman: it adds value to the space segment by virtue of the services that it provides for U.S. customers; by virtue of the assumption of financial risk, the provision of R&D, and the scale economies and free exchange of information that is inherent in its centralizing role; as well as by virtue of the way it fulfills its statutory obligations as the U.S. Signatory.

3. Reduce the Potential for Cross-Subsidization Within COMSAT

The categories and terms on which space segment can be obtained reflect the realities of the technology for developing and deploying satellites. From an economic standpoint, this very "lumpy" technology—with high front-end costs and a significant useful life—can be most efficiently sold to customers who can make a long-term commitment. The economies of scale inherent in servicing the customer's needs directly lead to a price schedule that also has volume discounts as an economic necessity.

Such price differentials often invite allegations of cross-subsidization between service offerings. However, the argument that direct access would reduce the potential for cross-subsidization within COMSAT suffers (just like the argument that direct access would increase efficiency) from a misconception about COMSAT's role as INTELSAT Signatory and the market environment in which COMSAT operates. In the years since the FCC's *Direct Access* decision, regulatory changes and dramatically increased competition in the industry[56] have forced COMSAT to unbundle its product mix (*e.g.*, COMSAT World Systems no longer offers earth station services). If it ever was possible to cross-subsidize certain product lines despite

[56] See Appendix B.

regulatory oversight, the dramatic increase in competition to COMSAT's provision of space segment accompanied by important regulatory changes has made this possibility highly unlikely.

4. Create a More Level Playing Field

The idea that direct access is necessary to create a more "level" playing field is similarly misguided. COMSAT World Systems is a wholesale supplier of INTELSAT space segment and does not serve telecommunications end users directly. As such, COMSAT's primary incentive is to expand satellite-based telecommunications service and it does so by providing access to INTELSAT in a non-discriminatory fashion. As the term is understood and applied in the theory of industrial organization, a level playing field requires that there are no barriers to entry in the provision of international satellite services to end users. However, direct access might create entry barriers that do not now exist by, for example, imposing up-front investment costs on new users of INTELSAT services. COMSAT does not structure its rates with any up-front charges. In doing so, it has kept the market free of entry barriers and their deleterious effects.[57]

The present system creates a more balanced competitive environment than would be likely under direct access. If direct access were adopted, it might in fact create an environment in which customers are inequitably treated. Depending on the form of direct access, U.S. customers might be treated differently according to whether they were willing to become investors in INTELSAT or according to whether or not they wanted to participate in INTELSAT's governance.

The way in which COMSAT provides a level playing field and non-discriminatory access to the INTELSAT system is also in stark contrast to foreign INTELSAT-access arrangements. Non-discriminatory access to INTELSAT does not generally exist in countries other than the U.S. As U.S. broadcasters have recently pointed out, the local telecommunications monopolies of these countries—the fully vertically- and horizontally-integrated PTTs—also perform the role as

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[57] For a discussion of entry barriers, see Jean Tirole, *The Theory of Industrial Organization*, MIT Press, Cambridge, Massachusetts, 1988, Chapter 8.

INTELSAT Signatories and are the only parties authorized to provide international satellite capacity to those countries.[58] In that role, the PTTs fully control their competitors' access to international satellite service. Only after privatization of some of these overseas telecommunications monopolies have a few foreign governments embraced the option of direct access to INTELSAT. However, these direct access policies have been motivated by the need to provide a level playing field with non-discriminatory access to international satellite services for emerging providers of telecommunication services. In stark contrast to foreign PTTs, COMSAT does not operate as a fully vertically- and horizontally-integrated monopoly provider of international telecommunications services via both satellite and fiber-optic cable systems. Moreover, as a result of the regulatory changes following the FCC's *Direct Access* decision,[59] COMSAT's charges are solely for the provision of space segment; space segment and earth station services are no longer bundled.

These differences between COMSAT and non-U.S. Signatories imply different consequences for direct access in the U.S. relative to direct access overseas. In other countries, direct access may be necessary in order to create a competitive alternative to the government-owned PTTs. In the U.S., effective competition already exists. COMSAT has been providing U.S. telecommunications carriers with a level playing field for decades. In these overseas markets, direct access may be the very first attempt to equalize the competitive conditions in the industry and provide non-discriminatory access for all users of the INTELSAT system.

The present U.S. structure has the advantage that all customers are treated equally. The only differences in customers' rates reflect real economic differences in the type and length of commitment to the subscribed INTELSAT space segment services. It makes no sense to differentiate among customers according to their willingness to become INTELSAT investors, for example. To confuse their respective comparative advantages in the bearing of risk, say,

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[58] As pointed out above, U.S. broadcasters have stated that the most serious problem faced by INTELSAT users is the lack of open and fair access to markets which are controlled in most countries by monopoly PTTs (*Telecommunications Daily*, March 15, 1995, p. 3).

[59] See discussion in Appendix B.

or in their tax status (*e.g.*, governmental agencies versus private firms—attributes that are unrelated to the real economics of their relationship to the providers of space segment services), is to make the playing field less rather than more level. By statute, COMSAT maintains a level playing field with non-discriminatory access for all U.S. customers at rates subject to FCC jurisdiction. A healthy, vigorous competition for international telecommunications services to and from the U.S. is doing the rest.

5. Increased Customer Choice

There is no doubt that, as a formal matter, customer choice will increase under any direct access option, merely because customers will have to make a choice that they do not now face. However, customer choice is not by itself a desideratum. Customer choice will increase whenever new products or services become available. Because there is a tradeoff between the welfare gains associated with product variety and the benefits of standardization and scale economies, an increase in variety will not automatically increase consumer welfare.[60] Thus, the only proper policy objective is to maximize the economic benefits for the ultimate users of INTELSAT services. Increased customer choice becomes a valid objective only if it is a synonym for overall efficiency. Options should be evaluated directly in terms of their impact on the intertemporal allocation of investments, on the efficiency of risk-bearing, or on the introduction of new products and services that would not otherwise be available.

In fact, direct access may create an environment in which customers are inequitably treated. Their effective options may depend on things other than their characteristics as providers of telecommunications services. If the move to direct access detracts from technological progress in the industry by removing some of the incentive for proper dissemination of information, or by weakening COMSAT in its role as the U.S. Signatory, then the increase in choice will have been counterproductive.

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[60] For a general discussion of this issue, see "Market Structure and Product Variety," in F. M. Scherer and David Ross, *Industrial Market Structure and Economic Performance*, 3rd Edition, Houghton Mifflin Company, Boston, 1990, p. 600-611.

6. Reduced Regulation

It could be argued that direct access would introduce competition to COMSAT in the provision of INTELSAT space segment to U.S. users and, thus, allow for reduced regulatory oversight of COMSAT. The fact is, however, that COMSAT already faces significant competition in the provision of trans-oceanic telecommunications capacity from a multitude of separate satellite and fiber-optic cable systems.[61] Considering the level of effective competition in the markets where COMSAT is operating today, a reduction in regulatory oversight would be warranted with or without direct access. Moreover, as discussed in the next section, any direct access option most likely would increase total regulatory costs. This is because—quite apart from the regulation of rates for COMSAT's own customers—direct access would make it necessary to create and implement a whole new regulatory framework to ensure that COMSAT was compensated adequately for the costs and liabilities it would continue to bear on behalf of direct access customers.

[61] See Appendix B.

C. Potential Costs of Direct Access

Current efforts are underway to restructure INTELSAT, dismantle its privileges and immunities as an intergovernmental organization, provide more flexible ownership and financing arrangements, and make access available to all customers of international satellite service. Given these efforts, and the fact that direct access generally would be available on a privatized INTELSAT, the question becomes: what are the costs of providing for direct access to U.S. customers before INTELSAT is restructured? We find that, at this point, direct access would likely result in:

- Decreased representation of U.S. policy interests;
- Delayed restructuring of INTELSAT;
- Increased INTELSAT costs and U.S. administrative costs;
- Mispricing of space segment and competitive distortions; and
- Reduced U.S. regulatory control.

As a consequence, the costs of allowing for direct access before INTELSAT restructuring is addressed may be significant and are most likely to outweigh any benefits of such a policy by a substantial margin.

1. Decreased Representation of U.S. Policy Interests

COMSAT was deliberately structured to advance U.S. policy interests in international telecommunications and has done so effectively since INTELSAT was established in 1964. Since the beginning, COMSAT has had to balance its profit motive with its role as a Signatory to a complex and growing international organization—one which began with only ten countries and now has 136 Signatories providing telecommunications service to more than 200 countries and territories worldwide. One of the original objectives of the U.S. Government was to extend the availability of satellite communications technology to countries and regions of the world that

could not have independently financed such growth. The very success of the INTELSAT system is evidence of the effectiveness of COMSAT's representation of this policy objective. However, any form of direct access discussed in Section III would decrease the effectiveness of COMSAT in representing U.S. policy interests within INTELSAT.

Direct access in the form of multiple Signatories would most obviously dilute COMSAT's voice within INTELSAT by taking away voting shares. As a result, COMSAT would be unable to represent U.S. policy interests with its current weight. The effect would be to balkanize the U.S. voice at a time when it needs to be unified in order to support INTELSAT restructuring options that conform with U.S. policy interests. Under the multiple Signatories option, direct access customers might even be able to pool their voting shares with foreign Signatories at the expense of serving U.S. interests.

Even the most limited forms of direct access such as "contractual access" would significantly weaken the voice with which U.S. policy interests could be put forth within INTELSAT. Any direct access options would most likely result in some form of direct customer participation in COMSAT's role as U.S. representative before INTELSAT.[62] Under such a scenario, differences between the private interests of direct access customers and the public policy interest of the United States, as represented by COMSAT, would become much more obvious. As a result, COMSAT might lose its credibility in representing U.S. interests within INTELSAT. Moreover, even if direct access customers were not Signatories to the international agreement, as large carriers (possibly with a significant capital investment) they would yield significant influence. These direct access customers would be likely to use their voice within INTELSAT to advance their own competitive interests over other U.S. carriers. The FCC has raised this concern already in its 1984 decision when it noted that direct access could be "detrimental to the promotion of intermodal competition" because direct access, for example, may enable AT&T

[62] For example, direct access customers may be able to participate as observers or alternate governors in INTELSAT meetings.